

a leading end for insertion first into the disc space, a trailing end opposite said leading end, and therebetween a length along a mid-longitudinal axis of said implant, said leading end being asymmetrical;

opposed portions between said leading and trailing ends adapted to be placed within the disc space to contact and support the adjacent vertebral bodies, said opposed portions being non-arcuate along at least a portion of the length of said implant, each of said opposed portions having at least one opening therein to permit for the growth of bone from adjacent vertebral body to adjacent vertebral body through said implant, said implant being formed at least in part of a material other than bone, said material comprising at least one of surgical quality titanium and its alloys, cobalt chrome alloy, tantalum, any metal or alloy suitable for the intended purpose, any ceramic material suitable for the intended purpose, and any plastic or composite material suitable for the intended purpose;

an interior facing side wall, an exterior facing side wall opposite said interior side wall, and a width therebetween, said width of said implant being less than approximately one-half of the maximum width of the adjacent vertebral bodies into which said implant is adapted to be inserted, said interior and exterior side walls being between said opposed portions and said leading and trailing ends, said interior side wall adapted to be oriented toward another implant when inserted within the disc space, each of said opposed portions having a vertebral body contacting surface between said at least one opening and at least one of said interior side wall and said exterior side wall, each of said vertebral body

contacting surfaces being adapted to be placed toward one of the adjacent vertebral bodies, said vertebral body contacting surfaces being spaced apart to define a hollow interior in communication with said openings;

*cont*  
*B<sub>1</sub>*  
a first distance as measured along the mid-longitudinal axis from said leading end to a plane perpendicular to and bisecting the length along the mid-longitudinal axis of said implant that is greater than a second distance as measured from said perpendicular plane to the junction of said leading end and said exterior side wall; and

a third distance as measured from the junction of said leading end and said interior side wall to the plane perpendicular to and bisecting the length along the mid-longitudinal axis of said implant that is greater than said second distance.

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*B<sub>2</sub>*  
34. (Amended) The implant of claim 1, wherein said opposed portions have at least two openings therein.

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Please add the following new claims:

*B<sub>3</sub>*  
--102. An artificial interbody spinal implant for insertion at least in part across the height of a disc space between adjacent vertebral bodies of a human spine, the vertebral bodies having an anterior aspect and a posterior aspect, said implant comprising:

a leading end for insertion first into the disc space, a trailing end opposite said leading end, and therebetween a length along a mid-longitudinal axis of said implant, said leading end being asymmetrical;

opposed portions between said leading and trailing ends adapted to be placed within the disc space to contact and support the adjacent vertebral bodies, said opposed portions being non-arcuate along at least a portion of the length of said implant, said implant being formed at least in part of a material other than bone, said material comprising at least one of surgical quality titanium and its alloys, cobalt chrome alloy, tantalum, any metal or alloy suitable for the intended purpose, any ceramic material suitable for the intended purpose, and any plastic or composite material suitable for the intended purpose;

an interior facing side wall, an exterior facing side wall opposite said interior side wall, and a width therebetween, said width of said implant being less than approximately one-half of the maximum width of the adjacent vertebral bodies into which said implant is adapted to be inserted, said interior and exterior side walls being between said opposed portions and said leading and trailing ends, said interior side wall adapted to be oriented toward another implant when inserted within the disc space;

a first distance as measured along the mid-longitudinal axis from said leading end to a plane perpendicular to and bisecting the length along the mid-longitudinal axis of said implant that is greater than a second distance as measured from said perpendicular plane to the junction of said leading end and said exterior side wall; and

a third distance as measured from the junction of said leading end and said interior side wall to the plane perpendicular to and bisecting the length along the mid-longitudinal axis of said implant that is greater than said first distance

and said second distance.

103. The implant of claim 102, wherein said leading end is at least in part non-linear.
104. The implant of claim 102, wherein at least a portion of said leading end is tapered from opposed portion to opposed portion for facilitating insertion of the implant between the two adjacent vertebral bodies.
105. The implant of claim 102, wherein less than half of said leading end is along a line perpendicular to the mid-longitudinal axis of said implant in a plane dividing said implant into an upper half and a lower half.
106. The implant of claim 102, wherein more than half of said leading end is a contour that goes from said exterior side wall toward the mid-longitudinal axis of said implant in a plane dividing said implant into an upper half and a lower half.
107. The implant of claim 102, wherein said leading end includes a curve that extends from said exterior side wall beyond the mid-longitudinal axis of said implant.
108. The implant of claim 102, further comprising at least one protrusion extending from at least one of said opposed portions for engaging at least one of the adjacent vertebral bodies to maintain said implant within the disc space.
109. The implant of claim 108, wherein said protrusion comprises a ridge.
110. The implant of claim 102, further comprising a plurality of surface roughenings for engaging the adjacent vertebral bodies and for maintaining said implant in place, said surface roughenings being present on at least a part of said opposed portions.
111. The implant of claim 102, wherein said opposed portions have a porous surface.

112. The implant of claim 102, wherein said opposed portions have a bone ingrowth surface.
113. The implant of claim 102, wherein said implant has surface protrusions configured to protrude into bone.
114. The implant of claim 102, wherein said implant material is porous.
115. The implant of claim 102, in combination with a fusion promoting material other than bone.
116. The implant of claim 102, wherein said implant comprises a bone ingrowth material other than bone.
117. The implant of claim 102, further comprising a material that intrinsically participates in the growth of bone from one of the adjacent vertebral bodies to the other of the adjacent vertebral bodies.
118. The implant of claim 102, wherein said implant is treated with a fusion promoting substance.
119. The implant of claim 118, wherein said fusion promoting substance is bone morphogenetic protein.
120. The implant of claim 102, wherein said implant material is stronger than cancellous bone.
121. The implant of claim 102, wherein said implant material is stronger than cortical bone.
122. The implant of claim 102, wherein at least a portion of said implant is bioresorbable.

123. The implant of claim 102, further in combination with bone morphogenetic protein.
124. The implant of claim 102, further in combination with an osteogenic material.
125. The implant of claim 124, wherein said osteogenic material is a material other than bone.
126. The implant of claim 124, wherein said material is genetic material coding for the production of bone.
127. The implant of claim 124, wherein said material is bone morphogenetic protein.
128. The implant of claim 102, further in combination with genetic material coding for production of bone.
129. The implant of claim 102, wherein said implant has a maximum length less than and approximating the posterior to anterior depth of the vertebral body.
130. The implant of claim 102, wherein the trailing end is adapted to conform from side to side to at least a portion of the peripheral contour of at least one of the anterior and posterior aspects of the vertebral bodies adjacent a disc space into which said implant is inserted.
131. The implant of claim 102, wherein said opposed portions have at least one opening therein, said openings being in communication with one another to permit for the growth of bone from adjacent vertebral body to adjacent vertebral body through said implant.
132. The implant of claim 131, wherein each of said opposed portions comprises an interior surface, said interior surfaces being spaced apart to define a hollow interior in communication with said openings.

133. The implant of claim 102, wherein at least a portion of said opposed portions are in a diverging relationship to each other from trailing end to leading end for allowing angulation of the adjacent vertebral bodies relative to each other.
134. The implant of claim 102, wherein at least a portion of said opposed portions are generally in a converging relationship to each other from trailing end to leading end for allowing angulation of the adjacent vertebral bodies relative to each other.
135. The implant of claim 102, further comprising a plurality of openings and passages for retaining fusion promoting substance.
136. The implant of claim 102, wherein said opposed portions are in moveable relationship to each other to allow for relative motion of the adjacent vertebral bodies after said implant is installed.
137. The implant of claim 102, wherein said implant is adapted for insertion from the posterior aspect of the vertebral bodies and said leading end is configured to conform to the anatomic contour of at least a portion of the anterior aspect of the vertebral bodies.
138. The implant of claim 102, wherein said implant is adapted for insertion from the anterior aspect of the vertebral bodies and said leading end is configured to conform to the anatomic contour of at least a portion of the posterior aspect of the vertebral bodies.
139. The implant of claim 102, wherein said implant is adapted for insertion from a first lateral aspect of the vertebral bodies and said leading end is configured to